

WHAT IS CLAIMED IS:

1. An optical code reading and decoding system comprising:
a plurality of light sources for emanating a respective wavelength/color of light
towards an optical code on an externally located target surface, wherein at least two of the
5 plurality of light sources emanate different wavelengths/colors of light;
an image sensor for generating an integrated image of the optical code, said
integrated image having at least one image corresponding to a respective one of the
plurality of light sources;
a processor for analyzing at least one parameter corresponding to the at least one
10 image and determining a decodable image of the at least one image; and
a decoder for decoding at least a portion of said decodable image.
2. The optical code reading and decoding system as in Claim 1, wherein said optical
code is a DPM code.
3. The optical code reading and decoding system as in Claim 1, wherein said
15 plurality of light sources emanate a respective wavelength/color of light selected from the group
consisting of red, green, blue, infrared and ultraviolet.
4. The optical code reading and decoding system as in Claim 1, wherein the at least
one parameter is contrast.
5. The optical code reading and decoding system as in Claim 1, further comprising a
20 positional adjustment mechanism configured for moving each of the plurality of light sources.

6. The optical code reading and decoding system as in Claim 5, wherein the positional adjustment mechanism includes a rotation mechanism for rotating the plurality of light sources.
7. The optical code reading and decoding system as in Claim 5, wherein the positional adjustment mechanism includes an elevation mechanism for elevating and de-elevating the plurality of light sources.
8. The optical code reading and decoding system as in Claim 1, further comprising an automatic focus mechanism for focusing the integrated image of the optical code onto the image sensor.
9. The optical code reading and decoding system as in Claim 1, wherein the plurality of light sources are provided in an arrangement selected from the group consisting of U-shaped, triangular and circular arrangements.
10. The optical code reading and decoding system as in Claim 1, wherein the processor is programmed with default settings for each of the plurality of light sources.
11. The optical code reading and decoding system as in Claim 10, wherein the default settings include illumination intensity and glancing angle settings for each of the plurality of light sources.
12. The optical code reading and decoding system as in Claim 1, further comprising at least one sensor for sensing at least one parameter for controlling illumination intensity for each of the plurality of light sources.

13. The optical code reading and decoding system as in Claim 1, further comprising a display for providing at least one suggestion for acquiring the decodable image of the integrated image.

14. The optical code reading and decoding system as in Claim 1, wherein said system
5 is an optical code reader and wherein the plurality of light sources are housed within and removably mounted to said optical code reader.

15. The optical code reading and decoding system as in Claim 1, further comprising a feedback system having means for automatically setting at least one characteristic of said optical code reading system.

10 16. The optical code reading and decoding system as in Claim 1, further comprising an information system storing information related to an item, said information capable of being retrieved after decoding said at least a portion of said decodable image.

17. A method for reading and decoding an optical code comprising the steps of:
illuminating an optical code on a target surface by emanating a plurality of
15 wavelengths/colors of light towards the optical code, wherein at least two of the wavelengths/colors of light are different;
generating an integrated image of the optical code, said integrated image having at least one image corresponding to a respective one of the wavelengths/colors of light; and
decoding at least a portion of an image of said at least one image.

20 18. The method as in Claim 17, wherein said optical code is a DPM code.

19. The method as in Claim 17, wherein the illuminating step comprises the step of positioning a plurality of light sources in proximity to the optical code, each of said plurality of light sources configured to emanate one of the plurality of wavelengths/colors of light.

20. The method as in Claim 19, further comprising the step of adjusting the position
5 of the plurality of light sources with respect to the optical code.

21. The method as in Claim 19, further comprising the step of sensing at least one parameter for controlling illumination intensity for each of the plurality of light sources.

22. The method as in Claim 19, further comprising the step of automatically setting at least one characteristic of said plurality of light sources.

10 23. The method as in Claim 17, wherein the step of generating the integrated image comprises the step of automatically focusing the integrated image onto an image sensor.

24. The method as in Claim 17, further comprising the step of analyzing at least one parameter corresponding to the at least one image and determining a decodable image of the at least one image, wherein said decodable image is the image where the at least a portion thereof is
15 decoded by said decoding step.

25. The method as in Claim 24, wherein said at least one parameter is contrast.

26. The method as in Claim 24, wherein the step of analyzing the at least one parameter comprises the step of separating the integrated image in individual color channels each corresponding to a respective image of the at least one image, including the image where the at
20 least a portion thereof is decoded by said decoding step.

27. An optical code reader comprising:

a scanning unit housing a plurality of light sources;

an activation mechanism for actuating said plurality of light sources for emanating
a respective wavelength/color of light towards an optical code on an externally located
5 target surface, wherein at least two of the plurality of light sources emanate different
wavelengths/colors of light;

an image sensor for generating an integrated image of the optical code, said
integrated image having at least one image corresponding to a respective one of the
plurality of light sources;

10 means for analyzing at least one parameter corresponding to the at least one image
and determining a decodable image of the at least one image; and

a decoder for decoding at least a portion of said decodable image.

28. The optical code reader as in Claim 27, wherein said optical code is a DPM code.

29. The optical code reader as in Claim 27, wherein said plurality of light sources
15 emanate a respective wavelength/color of light selected from the group consisting of red, green,
blue, infrared and ultraviolet.

30. The optical code reader as in Claim 27, wherein the at least one parameter is
contrast.

31. The optical code reader as in Claim 27, further comprising a positional adjustment
20 mechanism configured for moving each of the plurality of light sources.

32. The optical code reader as in Claim 31, wherein the positional adjustment mechanism includes a rotation mechanism for rotating the plurality of light sources.

33. The optical code reader as in Claim 31, wherein the positional adjustment mechanism includes an elevation mechanism for elevating and de-elevating the plurality of light
5 sources.

34. The optical code reader as in Claim 27, further comprising an automatic focus mechanism for focusing the integrated image of the optical code onto the image sensor.

35. The optical code reader as in Claim 27, wherein the plurality of light sources are provided in an arrangement selected from the group consisting of U-shaped, triangular and
10 circular arrangements.

36. The optical code reader as in Claim 27, wherein the means for analyzing includes a processor programmed with default settings for each of the plurality of light sources.

37. The optical code reader as in Claim 36, wherein the default settings include illumination intensity and glancing angle settings for each of the plurality of light sources.

38. The optical code reader as in Claim 27, further comprising at least one sensor for sensing at least one parameter for controlling illumination intensity for each of the plurality of
15 light sources.

39. The optical code reader as in Claim 27, further comprising a display for providing at least one suggestion for acquiring the decodable image of the integrated image.

40. The optical code reader as in Claim 27, wherein the plurality of light sources are housed within and removably mounted to the optical code reader.
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41. The optical code reader as in Claim 27, further comprising a feedback system having means for automatically setting at least one characteristic of said optical code reader.